STRATEGIC PLANNING REPORT ON PEDESTRIAN SAFETY

BY

THE PROVINCE OF NOVA SCOTIA/CITY OF HALIFAX

JOINT TASK FORCE

March 1989

EXECUTIVE SUMMARY AND RECOMMENDATIONS

Due to the public concern about the severity of some recent pedestrian accidents, and in recognition of the increasing volume of both pedestrian and vehicular traffic, the Minister of Transportation and Communications and the Mayor of Halifax organized a joint Task Force on pedestrian safety in January 1989.

The Task Force analyzed pedestrian accident data and noted an overall decrease in accidents, both provincewide and within the City. The Task Force's review of research on driver and pedestrian attitudes and behaviour revealed that pedestrian/ vehicle conflicts are not just a crosswalk related problem nor will the implementation of additional traffic control devices be the panacea for pedestrian safety. It was identified that pedestrians and drivers have a "we/they" aggressive attitude towards one another. This "I am right - you are wrong" attitude manifests itself in behavioural characteristics such as crossing against signals, failing to yield at crosswalks and crossing at nondesignated midblock locations. This accident and attitude research identified target groups and areas for specific pedestrian safety programs through media-based education.

The Task Force is concerned that traffic control devices which range from two parallel painted lines with signs to an overhead illuminated sign with flashing beacons can give pedestrians a false sense of security. These devices are regulatory but provide little defense against the inattentive or noncompliant driver.

There appears to be confusion with the wording of sections of the Motor Vehicle Act pertaining to pedestrian and driver responsibilities at crosswalks. Interpretation of the phrase "crossing the roadway" appears to vary among the courts, police and public. This phrase has been interpreted by some to mean that a pedestrian must be physically walking, and not just standing within the crosswalk waiting to cross, before an approaching motorist must yield.

Educational activities on pedestrian safety have, for the most part, been confined to in-school programs delivered by Provincial safety education officers, the City of Halifax's traffic engineering staff or police personnel. Pedestrian safety has been a component of general safety advertising programs but has not received specific funding at either the Provincial or Municipal level.

The questions surrounding pedestrian safety are very complex and form the basis of controversy and research across the country. The Conclusions and Recommendations of this Report were developed in that context and are considered by the Task Force to be an initial review and identification of strategy rather than the final answer to those questions of pedestrian safety.

The terms of reference for the Task Force were as follows:

1. To analyze pedestrian accident statistics for both the Province and the City of Halifax.

2. To consider information pertinent to pedestrian attitudes.

3. To analyze pedestrian control devices.

4. To review existing legislation and enforcement practices relating to pedestrian right-of-way.

5. To review existing educational programs on pedestrian safety.

Recommendations considered by the Task Force to be significant enough to justify implementation as soon as physically and economically possible are as follows:

ENGINEERING

1. Planners, Engineers, and Municipal officials should be made more aware of, and respond to, the needs and limitations of pedestrians in the design of highways and pedestrian facilities.

2. A standing committee, "Adoption and Application of Uniform Traffic Control Devices for Nova Scotia", with staff representation from Municipal and Provincial jurisdictions, should be formed to establish warrants and policies and promote the development and uniform application of all traffic control devices. Its purpose would be to ensure the consistent usage of these devices across the Province.

LEGISLATION AND ENFORCEMENT

1. The rules, regulations and laws applicable to pedestrian safety should be vigorously enforced towards both driver and pedestrian groups.

2. Sections of the Motor Vehicle Act which deal specifically with pedestrian and driver responsibilities towards one another should be reviewed. Amending appropriate sections, as described below, could more clearly define pedestrian and vehicle right-of-way both at crosswalks and midblock locations.

Legislation options:

2(a) <u>with respect to crosswalks</u>

Section 113(1) - Subject to Section 114, the driver of a vehicle shall yield the right-of-way to a pedestrian within a marked crosswalk or within an unmarked crosswalk at the end of a block, except at intersections where the movement of pedestrian traffic is being regulated by peace officers or traffic control signals.

OR

Section 113(1) - Subject to Section 114, the driver of a vehicle shall yield the right-of-way to a pedestrian within a marked or unmarked crosswalk at the end of a block where the pedestrian is on that half of the roadway on which the vehicle is travelling or is approaching so closely from the other half of the roadway that the pedestrian would be in danger if the vehicle were to proceed.

AND

Section 113(1A) - Section 113(1) does not apply where the movement of pedestrian traffic is being regulated by peace officers or traffic control signals.

2(b)

Section 113(3A) - Section 113(3) shall not be construed to prohibit the council of a city, town or municipality from making regulations or bylaws regulating pedestrians crossing a roadway at any other point other than in a marked or unmarked crosswalk.

2(c) <u>and with respect to jaywalking</u>

Section 273(1)(c) - Pedestrians crossing a roadway at any point other than within a marked or unmarked crosswalk.

Section 273(2)(i) - Require that pedestrians cross a roadway within a marked or unmarked crosswalk.

EDUCATION

The Task Force recommends that the educational focus be applied to both a short-term and long-term strategy.

SHORT-TERM

1. The co-operative effort among safety education agencies continue to provide pedestrian and other traffic safety instruction within the school system, with specific attention to providing a consistent co-ordinated message.

2. Safety education agencies continue and, if practical, expand the delivery of similar safety programs to adult community groups (seniors, service organizations, resident associations, etc.).

3. Development, production and distribution of pedestrian safety educational materials (sign kits, colouring books, reflective articles, etc.) targeted for preschoolers, students and adults.

LONG-TERM

1. The Department of Transportation and Communications and the Department of Education evaluate the curriculum requirements to support a comprehensive continuous safety education program for students.

2. Development of an ongoing program and delivery mechanism on pedestrian safety to cover all age groups. This educational core program should provide emphasis to:

   (a) pedestrian safety to the 5 to 14 age group, 15 to 24 age group and those 55 and over;
   (b) driver safety to the 15 to 34 age group and the 55 plus population.

3. The Department of Transportation and Communications initiate development of a mascot to represent highway safety programs.

4. Departmental advertising media programs, either electronic or print, should target particular groups at specific times of the year.

5. Media services be contacted to solicit their participation in providing public service announcements focusing on pedestrian safety.

6. Corporate support should be sought to assist in funding the preparation and distribution of educational and safety materials.

PREFACE

The Minister of Transportation and Communications and the Mayor of Halifax organized a joint Task Force on pedestrian safety in January 1989. Legislation and traffic control devices are under Provincial jurisdiction and because driver and pedestrian mobility are increasing in urban and rural areas, this review encompassed the entire Province. The sensitivity of the subject matter dictated an urgency for the Task Force to complete its evaluation and it was requested that a report be completed within a month.

The traditional and popular expectation for enhancing pedestrian safety is to install crosswalks. When accidents continue, both the public and the responsible administrators may be tempted to upgrade the crosswalk by installing additional side mounted signs, overhead signs and flashing lights. Experience indicates, however, that these devices are of limited value and may even present a danger by giving pedestrians a false sense of security.

The issue is further complicated by the fact that, on average, 47% of Halifax's pedestrian accidents have occurred at midblock locations, where no controls exist. Pedestrians may believe that they have the right-of-way at any point they choose to cross, or they may have an exalted perception of their own speed or of the driver's ability to see them and take appropriate action.

Contributing factors to accidents include both driver and pedestrian inattention. In addition, preliminary results of attitude studies indicate a high level of aggression on the part of young and middle-age adults, both drivers and pedestrians. Older pedestrians and drivers are fearful, probably with some justification.

Legislation affecting pedestrian safety is embodied in the Motor Vehicle Act. Enforcement officials in the Metro area have expressed some concern with the interpretation of certain sections dealing with pedestrian safety. This reinforces the position that pedestrian safety is related to the concentration of traffic, and is of more immediate concern in urban areas.

The Task Force has recommended specific courses of action as part of an overall strategy towards improving pedestrian safety.

The Members of the Task Force are as follows:
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INTRODUCTION

The competition and conflict between the motorist and pedestrian to share the same roadway has been an issue since the advent of the automobile. The two road users have directly conflicting objectives whenever the pedestrian attempts to cross the road by interrupting the flow of traffic.

The driving environment is very complex. A motorist's vigilance is distributed among a variety of driving tasks and visual contacts at any given time. The complexity increases with speed, number of travel lanes and weather conditions. The entry of a pedestrian wanting to cross the roadway further divides the driver's attention.

It is commonly recognized that pedestrian safety can only be assured through physical separation by pedestrian underpasses and overpasses. This is obviously not practical at most crossing locations. Reducing the number of pedestrian accidents will be achieved only through recognition by drivers and pedestrians of the rights and needs of the other. In particular, it is necessary that pedestrians make greater provision in their behaviour for the other demands on driver attention, as well as such practical questions as vehicle stopping distance.

A) PEDESTRIAN ACCIDENT STATISTICS

Pedestrian accident data were analyzed to determine patterns for specific remedial action. Provincewide data were available for the years 1983-1987 and includes Halifax statistics; Halifax data were for the years 1982-1988. These data indicate that the general trend is downward, despite yearly increases in vehicular and pedestrian volume. For example, in 1983 there were 436 reported pedestrian accidents in the Province compared with 348 in 1987; in the City of Halifax pedestrian accidents declined from 117 in 1982 to 102 in 1988.

Based on Provincial pedestrian accident data, Friday is the highest accident occurrence day and October and November represent the highest months for occurrence. The majority of pedestrian accidents occur in urban locations, in the daylight, on dry roadways, and on clear days. Pedestrians are most frequently hit when running into the roadway or crossing at locations other than intersections. The most frequent contributing factor listed for the driver is inattention. Driver involvement was most frequent among the 25-34 age group. The pedestrian age group most involved was the 5 to 14 year olds although adult pedestrians were overrepresented in Halifax.

The following represent some additional highlights from the pedestrian/driver accident statistics.

Ages of pedestrians involved

- between the ages of 5 to 14: 32% (N.S.); 19% (Hfx.)
- between the ages of 15 to 24: 25% (N.S.); 21% (Hfx.)
- age 55 and over: 15% (N.S.)

Ages of drivers involved

- between the ages of 15 to 34: 48% (N.S.)
- age 55 and over: 12% (N.S.)

Location of accidents

- in urban environment: 72% (N.S.)
- in rural environment: 20% (N.S.)
- unknown: 8% (N.S.)

Spot location of accidents (only the year 1987 for N.S.; 1982-88 for Halifax)

- midblock crossings: (no control) 36% (N.S.); 47% (Hfx.)
- marked crosswalks: 21% (N.S.); 20% (Hfx.)
- signalized intersections: 10% (N.S.); 18% (Hfx.)

Pedestrian fatalities

1988:	15 (N.S.); 4 (Hfx.)	1985:	23 (N.S.); 1 (Hfx.)
1987:	27 (N.S.); 0 (Hfx.)	1984:	16 (N.S.); 2 (Hfx.)
1986:	15 (N.S.); 2 (Hfx.)	1983:	23 (N.S.); 1 (Hfx.)

B) PEDESTRIAN AND DRIVER ATTITUDES

The Department of Transportation and Communications has sponsored some focus group work to determine attitudes toward safety as part of an advertising project at the Mount Saint Vincent University Business Department.

Preliminary results from the focus group work indicate that there is a strong "we/they" approach, as drivers and pedestrians often tend to blame each other. Young and middle-age people tend to blame the other party in driver/pedestrian confrontation, while older people tend to blame themselves. These attitudes suggest that communication should not concentrate entirely on the rules of crossing the street, but should attempt to reduce the aggressive approach of both drivers and pedestrians.

CONCLUSIONS

The Task Force recognizes that, despite a decreasing trend in the number of pedestrian accidents, the level of public interest and concern indicates a need to improve the overall level of pedestrian safety. The locations and ages of those involved in accidents identify target areas for potential remedial action.

The aggressive attitudes that were indicated by the Mount Saint Vincent University research probably carry over to the other driving/roadway activities and should be considered as part of all safety communications.

The target groups are:

1. The pedestrian age group 5 to 14. This group is involved in 32% of Provincial pedestrian accidents while accounting for only 16% of the Provincial population. This age group is overrepresented in accident involvement. The City of Halifax accounts for 19% of the 32% Provincial involvement. This age group would be expected to have a high incident rate due to their continuing development of cognitive abilities, lack of experience, short stature and unpredictability.

2. The pedestrian age group 15 to 24. This group is involved in 25% of Provincial pedestrian accidents while accounting for 16% of the Provincial population. Again this group is overrepresented in accident involvement. This age group would be aware of proper safe crossing procedures; however, it is believed that these young adults feel a need to have a self image which is one of independence and control. Their attitude would be one of confrontation.

3. Pedestrians aged 55 and over. Although this age group is involved in only 15% of the Provincial pedestrian accidents whereas they presently represent 20% of the population, we have an aging population. The majority of these people have never received any formal education as pedestrians. Taking into consideration the natural aging process (a reduction in vision acuity, motor functions, agility, cognitive capabilities, etc.), the over 55's tend to be overcautious and unsure as to a safe crossing opportunity.

4. The driver age group 15 to 34. This group is involved in 48% of Provincial accidents whereas they represent 33% of the population. This age group would be expected to be involved in a significant portion of the accidents; however, they are overrepresented. These drivers have a confrontational aggressive attitude and feel they are not at fault. This group would be most influenced by "the rush of today's world".

5. Drivers aged 55 and over. Although this group is involved in 12% of the accidents whereas they form 20% of the population, the population is aging. There is an increasing percentage of drivers in this age category. Most have never had formal driver education and training. The natural aging process results in skill impairments that cause excessively cautious and slow decisions. Deterioration in vision acuity reduces their ability to see pedestrians.

ENGINEERING

There is a widespread misconception among pedestrians that painted lines and posted signs of various sizes and shapes at crosswalks are effective safety devices which will protect them and eliminate a conflict with an approaching vehicle. This false sense of security often is the cause of vehicular/pedestrian collisions.

The Task Force reviewed the engineering aspects of pedestrian safety in two main areas:

(1) The design standards of highway/pedestrian interaction, and the guiding principles upon which they are based.

(2) Existing and available pedestrian safety and control devices, and the common warrants for their application.

Design Principles for Roadways

The traditional design philosophy of highways in North America emphasizes the mobility of the vehicle; as a result, pedestrian needs are sometimes overlooked. An example of this is the lack of sidewalks on many suburban roadways where pedestrians are forced to share the street with vehicular traffic. Features of roadway design available to separate pedestrians from vehicles include:

(a) pedestrian refuge areas (such as islands and raised medians);

(b) restrictive devices (such as railings and fencing) to guide pedestrians to proper crossing locations;

(c) sidewalks (in urban areas) and wider shoulders (in rural areas where children are not bussed to school).

Pedestrian Crossing Protection and Control Devices

An important consideration in pedestrian safety is the proper use of pedestrian crossing and control devices. The Council on Uniform Traffic Control Devices for Canada (CUTCD) recently placed these control devices in the following hierarchical order:

(1) Simple crosswalk - two parallel white lines, plus side mounted signs.

(2) Special crosswalk - in addition to the crosswalk lines and side mounted signs, the special crosswalk may be supplemented by: overhead illuminated signs with down lighting, pedestrian actuated flashing beacons and other markings and signs.

(3) Traffic control signals.

(4) Pedestrian overpasses or underpasses.

Even though the CUTCD provided the hierarchy and the design of the devices, it did not supply specific application guidelines.

CONCLUSIONS

Engineering can certainly play a very important role in pedestrian safety. However, engineering design alone is not enough; the public must be educated in the proper use of traffic control devices and on having the proper attitude. It is also important that Provincially established guidelines for the different categories of pedestrian protection and control devices be made available, thereby resulting in a consistent and easily understood safety program throughout the Province.

It is also important that the public be made aware of these guidelines and policies. The net result would be a safer environment for the pedestrian.

RECOMMENDATIONS

1. Planners, Engineers, and Municipal officials should be made more aware of, and respond to, the needs and limitations of pedestrians in the design of highways and pedestrian facilities.

2. A standing committee, "Adoption and Application of Uniform Traffic Control Devices for Nova Scotia", with staff representation from Municipal and Provincial jurisdictions should be formed to establish warrants and policies and promote the development and uniform application of all traffic control devices. Its purpose would be to ensure the consistent usage of these devices across the Province.

ENFORCEMENT AND LEGISLATION

Police agencies in Amherst, Bridgewater, Bedford, Glace Bay, Truro, Sackville, Dartmouth and Halifax were asked their opinions on those sections of the Motor Vehicle Act which impact on pedestrian safety. Most enforcement representatives, primarily those in sparsely populated jurisdictions, had no significant problem with existing Provincial legislation. However, Dartmouth, Bedford and Halifax expressed various degrees of dissatisfaction with the Motor Vehicle Act.

Enforcement agencies in the metro area indicated that they interpret the phrase "crossing the roadway" in section 113(1) of the Motor Vehicle Act to mean physically walking across the street. Under this interpretation, and contrary to popular pedestrian belief, vehicles are not required to stop for pedestrians standing waiting to cross, even with their hand raised, either on the curb or within the crosswalk.

Bylaws which prohibit jaywalking (i.e., crossing at locations other than within a marked or an unmarked crosswalk) do not exist either locally or provincially within Nova Scotia. If such an ordinance was enacted at the municipal level, then meaningful publicity and enforcement could follow.

CONCLUSIONS

Interpretation of current legislation limits the ability of police to ticket either motorists alleged to have failed to yield at a crosswalk or pedestrians alleged to have jaywalked. Legislation, either new or amended, should clearly define the responsibilities of pedestrians and motorists. Such legislation would permit enforcement personnel to achieve successful prosecutions in the courts. Effective and balanced enforcement is essential to a successful pedestrian safety program. Driver and pedestrian-based laws, regulations and responsibilities that are taught through education must be reflected in on-street enforcement. Enforcement that contradicts such instruction will serve to defeat this educational effort.

RECOMMENDATIONS

The Task Force recommends that the Motor Vehicle Act be reviewed. Amended and new sections may result in more effective police enforcement at crosswalks and at midblock locations.

1. The rules, regulations and laws applicable to pedestrian safety should be vigorously enforced towards both driver and pedestrian groups.

Legislation options:

2(a) <u>with respect to crosswalks</u>

Section 113(1) - Subject to Section 114, the driver of a vehicle shall yield the right-of-way to a pedestrian within a marked crosswalk or within an unmarked crosswalk at the end of a block, except at intersections where the movement of pedestrian traffic is being regulated by peace officers or traffic control signals.

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EDUCATIONAL ACTIVITIES

Existing Educational Efforts Directed to Schools

The Safety Education Section of the Department of Transportation and Communications conducts regular highway safety training programs within the school system. In addition, safety education officers respond to requests from the community for information and frequently deliver programs targeted at a specific segment of the population.

The City of Halifax's Traffic Engineering Division has conducted a pedestrian safety program since 1974 consisting of school presentations, distribution of pedestrian safety colouring books to elementary grades and assisting in requests for information from schools.

The Halifax Police Department delivers a safety program (with a pedestrian component) through the school system. With the recent introduction of Community Based Policing, more emphasis is being placed on traffic safety issues at the neighbourhood level.

A survey of several Canadian cities indicates that pedestrian safety programs supplemented with safety colouring books are generally conducted in municipal school systems. Most efforts in pedestrian safety education are aimed at young children to teach them basic safety behavior in traffic.

Existing Educational and Informational Efforts Directed to the General Population

The Department of Transportation and Communications has no specific advertising budget for pedestrian safety, but it is included with other safety programs. Newspaper ads are presented periodically as required for the end of the school term, winter walking, Hallowe'en, etc. The electronic media are not generally employed.

The City of Halifax Traffic Engineering Division's media advertising budget is limited to newspaper ads at selective times of the year. The production of safety colouring books also comes from this budget. A "Crosswalk Co-operation" pamphlet has been produced and distributed by various means. Co-operation with the news media is maintained.

The Halifax Police Department has been increasing their efforts to reach the general community by promotional blitzes employing "handouts" to motorists in traffic, shopping centre displays and other methods. The Department recently produced a thirty second video promoting crosswalk safety which is aired as a public service by some television stations.

Across Canada, most cities surveyed have pedestrian safety messages included in advertising budgets for general safety programs. Newspaper advertising is done periodically as required and public service announcements are solicited. No cities indicated any specific program devoted to explaining the proper use of control devices.

CONCLUSION

Various safety education agencies presently provide regular safety instruction to school-age children within the City of Halifax and throughout the Province. Co-ordination of the messages presented by these agencies is limited, however, with various groups promoting different approaches. The effectiveness of these educational efforts is difficult to quantitatively evaluate. It was agreed that schools, particularly in the higher grades, should pay more attention to the safety questions generated by the use of vehicles in society.

There was also agreement that there is insufficient attention to traffic safety in the adult population. New avenues of education and promotion should be explored with emphasis on targeting specific groups.

RECOMMENDATIONS

The Task Force recommends that the educational focus be applied to both a short-term and long-term strategy.

SHORT-TERM

1. The co-operative effort among safety education agencies continue to present pedestrian and other traffic safety instruction within the school system, with specific attention to providing a consistent co-ordinated message.

2. Safety education agencies continue and, if practical, expand the delivery of similar safety programs to community groups (seniors, service organizations, resident associations, etc.), thereby accommodating the adult population.

3. Development, production and distribution of pedestrian safety educational materials (sign kits, colouring books, reflective articles, etc.), for preschoolers, students and adults.

LONG-TERM

1. The Department of Transportation and Communications and the Department of Education evaluate the curriculum requirements to support a comprehensive continuous safety education program for students.

2. Development of an ongoing program and delivery mechanism on pedestrian safety to cover all age groups. This educational core program should provide emphasis to:

   (a) pedestrian safety to the 5 to 14 age group, 15 to 24 age group and those 55 and over;
   (b) driver safety to the 15 to 34 age group and the 55 plus population.

3. The Department of Transportation and Communications initiate development of a mascot to represent highway safety programs.

4. Departmental advertising media programs, either electronic or print, should target particular groups at specific times of the year.

5. Media services be contacted to solicit their participation in providing public service announcements focusing on pedestrian safety.

6. Corporate support should be sought to assist in funding the preparation and distribution of educational and safety materials.